



PTO/SB/08A (08-03)

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 1 of 5

Complete if Known

Application Number	09/721,506
Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas
Art Unit	1634
Examiner Name	Sisson, Bradley L.
Attorney Docket Number	015389-002616US

U.S. PATENT DOCUMENTS+

Examiner Initials*	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
BLL	A1	US-5,597,697		01-28-1997	Diamond	
	A2	US-5,917,025		06-29-1999	Collins	
	A3	US-6,309,867 B1		10-30-2001	Cech et al.	
	A4	US-6,337,200 B1		01-08-2002	Morin	
	A5	US-6,610,839 B1		08-26-2003	Cech et al.	
BLL	A6	US-6,617,110 B1		09-09-2003	Cech et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)				
BLL	B1	GB	2 317 891	A ✓	04-08-1998			<input type="checkbox"/>
	B2	PCT	WO 93/23572	A1 ✓	11-25-1993			<input type="checkbox"/>
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	B4	PCT	WO 98/14592	A2 ✓	04-09-1998			<input type="checkbox"/>
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	B6	PCT	WO 98/23759	A2 ✓	06-04-1998			<input type="checkbox"/>
	B7	PCT	WO 99/33998	A2 ✓	07-08-1999			<input type="checkbox"/>
	B8	PCT	WO 99/38964	A2 ✓	08-05-1999			<input type="checkbox"/>
BLL	B9	PCT	WO 00/46355	A2 ✓	08-10-2000			<input type="checkbox"/>

Examiner
Signature

B.L. Sisson

Date
Considered

11-15-2003

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PTO/SB/08B (08-03)

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known	
Application Number	09/721,506		
Filing Date	November 22, 2000		
First Named Inventor	Cech, Thomas		
Art Unit	1634		
Examiner Name	Sisson, Bradley L.		
Attorney Docket Number	015389-002616US		
Sheet	2	of	5

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
B2L	C1	ADAMSON, D. et al. "Significant Telomere Shortening in Childhood Leukemia", <i>Cancer Genet. Cytogenet.</i> , 1992; pp. 204-206, Vol. 61	<input type="checkbox"/>
	C2	AUTEXIER, CHANTAL, et al., "Telomerase and cancer: revisiting the telomere hypothesis; Trends in Biochemical Sciences, 1996, pp. 387-391, Vol. 10, No. 21.	<input type="checkbox"/>
	C3	AVILION, A., "Characterization and expression of human telomerase," <i>Dissertation Abstracts International</i> , 1996, pp. 5930-B, Vol. 56, No. 11	<input type="checkbox"/>
	C4	BARINGA, MARCIA, "The Telomerase Picture Fills In", <i>Science</i> , April 25, 1997; pp. 528-529, Vol. 276	<input type="checkbox"/>
	C5	CHIU, et al. "Replicative senescence and cell immortality: the role of telomeres and telomerase (44075)", <i>Proc. Soc. Exp. Bio. Med.</i> , 1997, pp. 99-106, Vol. 214.	<input type="checkbox"/>
	C6	CHONG, L. et al. "A Human Telomeric Protein", <i>Science</i> , Dec. 1995, pp. 1663-1667, Vol. 270.	<input type="checkbox"/>
	C7	COLLINS, KATHLEEN, "Structure and function of telomerase", <i>Current Opinion in Cell Biology</i> , 1996, pp. 374-380, Vol. 8	<input type="checkbox"/>
	C8	COUNTER, C. et al. "Telomerase Activity in Normal Leukocytes and in Hematologic Malignancies" <i>Blood</i> , May 1, 1995; pp. 2315-2320, Vol. 85, No. 9.	<input type="checkbox"/>
	C9	COUNTER, C. et al. "Telomere shortening associated with chromosome instability is arrested in immortal cells which express telomerase activity", <i>The EMBO Journal</i> , 1992, pp. 1921-1929, Vol. 11; No. 5, Oxford University Press.	<input type="checkbox"/>
	C10	DE LANGE, T. et al. "Structure and Variability of Human Chromosome Ends"; <i>Molecular and Cellular Biology</i> , February 1990; pp. 518-527, Vol. 10, No. 2.	<input type="checkbox"/>
	C11	FLAVELL, R. & MATHIAS, R. "Prospects for transforming monocot crop plants", <i>Nature</i> , 12 Jan. 1984, pp. 108-109, Vol. 307.	<input type="checkbox"/>
	C12	FRESHNEY, <i>Culture of Animal Cells. A Manual Basic Technique</i> , p. 4, Alan R. Liss, Inc. New York, 1983.	<input type="checkbox"/>
	C13	Genbank Accession No. A46242; September 21, 1993	<input type="checkbox"/>
	C14	Genbank Accession No. L38903; January 30, 1995	<input type="checkbox"/>
	C15	Genbank Accession No. Q06163; November 01, 1995	<input type="checkbox"/>
B2L	C16	Genbank Accession No. S39696; October 07, 1994	<input type="checkbox"/>

Examiner Signature	B. L. Sisson	Date Considered	11-16-2003
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Sheet 3 of 5

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Application Number	09/721,506
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First Named Inventor	Cech, Thomas
Art Unit	1634
Examiner Name	Sisson, Bradley L.
Attorney Docket Number	015389-002616US

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B & F	C17	Genbank Accession No. S53396; May 5, 1995	<input type="checkbox"/>
	C18	GenBank Accession No. U95964; May 5, 1997	<input type="checkbox"/>
	C19	GenBank Accession No. W70315; June 19, 1996	<input type="checkbox"/>
	C20	GLASER, P. et al. "Bacillus subtilis genome project: cloning and sequencing of the 97 kb region from 325' to 333'" <i>Molecular Microbiology</i> , 1993, pp. 371-384, Vol. 10, No. 2.	<input type="checkbox"/>
	C21	GOODMAN, R. et al. "Gene Transfer in Crop Improvement", <i>Science</i> , 3 April 1997, pp. 48-54, Vol. 236.	<input type="checkbox"/>
	C22	GREIDER, C. "Telomeres, Telomerase and Senescence"; <i>BioEssays</i> ; 1990; pp. 363-369, Vol. 12, No. 8.	<input type="checkbox"/>
	C23	HARLEY, C. "Telomere loss: Mitotic clock or genetic time bomb?" <i>Mutation Research</i> ; 1991; pp. 271-282, Vol. 256, Elsevier Science Publishers.	<input type="checkbox"/>
	C24	HARLEY, C. & VILLEPONTEAU, B. "Telomeres and telomerase in aging and cancer" <i>Current Opinion in Genetics and Development</i> ; 1995, pp. 249-255, Vol. 5.	<input type="checkbox"/>
	C25	HARLEY, C. et al. "Telomeres shorten during ageing of human fibroblasts", <i>Nature</i> , 31 May 1990; pp. 458-460, Vol. 345.	<input type="checkbox"/>
	C26	HASTIE, N. et al. "Telomere reduction in human colorectal carcinoma and with ageing", <i>Nature</i> , 30 August 1990, pp. 866-868, Vol. 346.	<input type="checkbox"/>
	C27	HEALY, K. C. "Telomere dynamics and telomerase activation in tumor progression: prospects for prognosis and therapy" <i>Oncol. Res.</i> , 1995, pp. 121-130, Vol. 7	<input type="checkbox"/>
	C28	HENDERSON, C. Cancer genetics gene regulates telomerase resulting in death of cancer cells; <i>Gene Therapy Weekly</i> ; 11 September 1995.	<input type="checkbox"/>
	C29	HIYAMA, E. et al. "Correlating telomerase activity levels with human neuroblastoma outcomes"; <i>Nature Medicine</i> ; 3 March 1995; pp. 249-255, Vol. 1, No. 3.	<input type="checkbox"/>
	C30	HOLTZMANN, K. et al. "Telomeric Associations and Loss of Telomeric DNA Repeats in Renal Tumors", <i>Genes, Chromosomes & Cancer</i> , 1993, pp. 178-181, Vol. 6.	<input type="checkbox"/>
	C31	JÄHNE, A. et al. "Genetic Engineering of Cereal Crop Plants: A Review", <i>Euphytica</i> , 1995, pp. 35-44, Vol. 85, Kluwer Academic Publishers, Netherlands.	<input type="checkbox"/>
	C32	JOLLIFFE, L.K. "Humanized antibodies: enhancing therapeutic utility through antibody engineering", <i>Int. Rev. Immunol.</i> , 1993, pp. 241-250, Vol. 10	<input type="checkbox"/>
B & F	C33	KIM, N. et al. "Specific Association of Human Telomerase Activity with Immortal Cells and Cancer", <i>Science</i> , 23 December 1994, pp. 2011-2014, Vol. 266.	<input type="checkbox"/>

Examiner Signature	<i>B. L. Sisson</i>	Date Considered	11-16-2003
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 4 of 5

Complete if Known

Application Number	09/721,506
Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas
Art Unit	1634
Examiner Name	Sisson, Bradley L.
Attorney Docket Number	015389-002616US

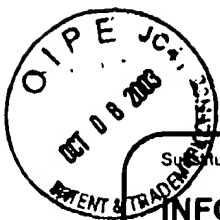
NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
B/L	C34	KLINGELHUTZ, A. et al. "Restoration of Telomeres in Human Papillomavirus-Immortalized Human Anogenital Epithelial Cells"; <i>Molecular and Cellular Biology</i> ; Feb. 1994, pp. 961-969, Vol. 14, No. 2.	<input type="checkbox"/>
	C35	LEWIS, A. & CROWE, J.S. "Generation of humanized monoclonal antibodies by 'best fit' framework selection and recombinant polymerase chain reaction"; <i>Year Immunol.</i> , 1993, pp. 110-118, Vol. 7.	<input type="checkbox"/>
	C36	Linking telomerase and tumors; <i>Genesis Report- Dx</i> ; 1995; Vol. 4, No. 6; Publisher Genesis Group Associates.	<input type="checkbox"/>
	C37	LUNDBLAD, V. & BLACKBURN, E., Letter to the Editor entitled, "RNA-Dependent Polymerase Motifs in EST1: Tentative Identification of a Protein Component of an Essential Yeast Telomerase"; <i>Cell</i> , 23 Feb. 1990, pp. 529-530, Vol. 60.	<input type="checkbox"/>
	C38	LUSTIG, ARTHUR J., "The identification of telomerase subunits: catalysing telomere research"; <i>Trends in Cell Biology</i> ; August 1997, pp. 299-302, Vol. 7.	<input type="checkbox"/>
	C39	MALICKI, J. et al. "A human <i>HOX4B</i> regulatory element provides head-specific expression in <i>Drosophila</i> embryos"; <i>Nature</i> , 23 July 1992, pp. 345-357, Vol. 358.	<input type="checkbox"/>
	C40	NAKAYAMA, J. et al. "Cloning of a Candidate cDNA Encoding a Proteinaceous Component of Mammalian Telomerase"; <i>Molecular Biology Cell Abstracts Supp.</i> 7, 1996, p. 875-884, 286a Section 1664.	<input type="checkbox"/>
	C41	NATARAJAN et al. "Major histocompatibility complex determinants select T-cell receptor alpha chain variable region dominance in a peptide-specific response." <i>Proc. Natl. Acad. Sci.</i> , Oct 1992, pp. 8874-8878, Vol. 19.	<input type="checkbox"/>
	C42	PASZKOWSKI, JERZY et al. "Direct gene transfer to plants," <i>The EMBO Journal</i> , 1984, pp. 2717-2722, Vol. 3, No. 12.	<input type="checkbox"/>
	C43	POTRYKUS, I. et al. "Direct gene transfer to cells of a graminaceous monocot", <i>Mol. Gen. Genet.</i> , 1985, pp. 183-186, Vol. 199.	<input type="checkbox"/>
	C44	RAYMOND, E., et al.; Agents that target telomerase and telomeres; <i>Curr. Opin. Biotechnol.</i> ; 1996; 7:583-91	<input type="checkbox"/>
	C45	RHYU, M.S. "Telomeres, telomerase, and immortality"; <i>J. Natl. Cancer Inst.</i> ; 21 June 1995; pp. 884-894, Vol. 87, No. 12.	<input type="checkbox"/>
	C46	SCHENA et al. "Parallel human genome analysis: Microarray-based expression monitoring of 1000 genes"; <i>Proc. Natl. Acad. Sci.</i> , Oct. 1996, pp. 10614-10619, Vol. 93, USA.	<input type="checkbox"/>
	C47	SCHWARTZ, H. et al. "Telomere Reduction in Giant Cell Tumor of Bone and with Aging"; <i>Cancer Genet Cytogenet</i> ; 1993; pp. 132-138, Vol. 71, Elsevier Science Publishing Co., Inc., New York, U.S.A.	<input type="checkbox"/>
	C48	SINGER, M. "Unusual Reverse Transcriptases"; <i>Journal of Biological Chemistry</i> ; 1995, pp. 24623-23626, Vol. 270, No. 42	<input type="checkbox"/>
B/L	C49	SMITH, J. & YEH, G. "Telomere Reduction in Endometrial Adenocarcinoma"; <i>Am. J. Obstet. Gynecol.</i> ; Dec. 1992; pp. 1883-1887, Vol. 167, No. 6	<input type="checkbox"/>

Examiner Signature	B. L. Sisson	Date Considered	11-16-2003
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PTO/SB/08B (08-03)

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**INFORMATION DISCLOSURE
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(use as many sheets as necessary)

Sheet 5 of 5**Complete If Known**

Application Number	09/721,506
Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas
Art Unit	1634
Examiner Name	Sisson, Bradley L.
Attorney Docket Number	015389-002616US

NON PATENT LITERATURE DOCUMENTS

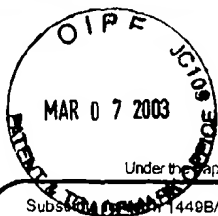
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
B/L	C50	TAIT, J. et al. "Structure and Polymorphisms of the Human Annexin III (ANX3) Gene", <i>Genomics</i> , 1993, pp. 79-86, Vol. 18, No. 1	<input type="checkbox"/>
	C51	WINTER, G. & HARRIS, W. "Humanized Antibodies", <i>Trends Pharmacol. Sci.</i> , May 1993, pp. 139- 143, Vol. 14.	<input type="checkbox"/>
	C52	WIRTH, URS et al; "Immediate-Early RNA 2.9 and Early RNA 2.6 of Bovine Herpesvirus 1 Are 3' Coterminal and Encode of Putative Zinc Finger Transactivator Protein"; <i>Journal of Virology</i> ; May 1992; pp. 2763-2772, Vol. 66, No. 5.	<input type="checkbox"/>
B/L	C53	ZAUG, ARTHUR et al., "Method for determining RNA 3' ends and application to human telomerase RNA", <i>Nucleic Acids Research</i> , 1996, pp. 532-533, Vol. 24, No. 3.	<input type="checkbox"/>

Examiner
SignatureDate
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11-16-2003

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PTO/SB/08B (10-01)
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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
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Subsection 1449B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Application Number	09/721,506
		Filing Date	November 22, 2000
		First Named Inventor	Thomas R. Cech
		Art Unit	1634
		Examiner Name	Sisson, Bradley L.
Sheet 1 of 1	Attorney Docket Number	015389-002616US	

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
816	AA	6,166,178	12-26-2000	Cech et al.	
	AB	6,093,809	07-25-2000	Cech et al.	
818	AC	US-6,475,789 B1	11-05-2002	Cech et al.	

Examiner Signature	<i>B. L. Sisson</i>	Date Considered	11-16-2003
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Substitute for form 1448B/PTO

**INFORMATION DISCLOSURE
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Sheet 1 of 1

Complete if Known

Application Number	09/721,508
Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas R.
Group Art Unit	1651/1634
Examiner Name	Unassigned
Attorney Docket Number	015388-002616US

U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (If known)			
B21	A	6,268,636	B1	Vilepoussu et al.	07-10-2001	
B21	B	6,281,668	B1	Wehrich et al.	07-17-2001	
B21	C	6,281,636	B1	Cech et al.	07-17-2001	

FOREIGN PATENT DOCUMENTS

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		Office ²	Number ²	Kind Code ² (If known)				

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.

Examiner
Signature

B. L. Simon

Date
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PTO/SB/08A (10-00)

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Sheet 1 of 10

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Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas J.
Group Art Unit	1851 1674
Examiner Name	To Be Assigned
Attorney Docket Number	015388-002616US

U.S. PATENT DOCUMENTS

Examiner Initials ¹	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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821	A	08/751,189		Harrington, et al.	11/15/96	
	B	00/098,750		Caupier, et al.	02/20/97	
	C	3,617,837		Tanenholz et al.	08-16-74	
	D	3,850,762		Schuurs et al.	11-28-74	
	E	3,039,350		Kronick et al.	03-17-76	
	F	3,998,345		Ullman et al.	12-01-78	
	G	4,275,149		Ullman et al.	06-23-81	
	H	4,277,437		Maggio	07-07-81	
	I	4,986,241		Tom et al.	12-28-82	
	J	4,883,195		Mullis et al.	07-28-87	
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821	S	6,288,535	B1	Villeponteau et al.	07/10/01	
	T	6,281,556	B1	Weinrich et al.	07/17/01	
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821	V	JP	09154573-A			06-17-97	
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	Y	PCT	WO 96/01835			01-25-96	
	Z	PCT	WO 96/12811			05-02-96	
821	AA	PCT	WO 96/16580			05-27-96	

Examiner Signature

B. L. Lina

Date Considered

11-16-2003

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² Unique citation designation number. ³ See attached (Kind of U.S. Patent Documents). ⁴ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁷ Applicant is to place a check mark here if English language translation is attached.

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Substitute for form 1449APTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **2** of **10****Complete if Known**

Application Number	09/721,508
Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas J.
Group Art Unit	1854 1634
Examiner Name	To Be Assigned
Attorney Docket Number	015389-002616US

FOREIGN PATENT DOCUMENTS

Examiner Initials ¹	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Office ²	Number ²	Kind Code ³ (if known)			
B.T.	AB	PCT	WO 98/40868			12-18-98	
	AC	PCT	WO 98/01842			01-15-98	
	AD	PCT	WO 98/01549			01-15-98	
	AE	PCT	WO 98/07838			03-05-98	
	AF	PCT	WO 98/08838			02-28-98	
	AG	PCT	WO 98/21343			05-22-98	
	AH	PCT	WO 98/37181			08-27-98	
	AI	PCT	WO 98/45490			10-15-98	
	AJ	PCT	WO 98/59040			12/30/98	
	AK	PCT	WO 98/01680			01/14/99	

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B.T. Lison

Date

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11-16-2003

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²Unique citation designation number. ³See attached Kinds of U.S. Patent Documents. ⁴Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶Kind of document by the appropriate symbol as indicated on the document under WIPO Standard ST. 16 if possible. ⁷Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/721,506
		Filing Date	November 22, 2000
		First Named Inventor	Coch, Thomas J.
		Group Art Unit	1854 1634
		Examiner Name	To Be Assigned
		Attorney Docket Number	015389-002616US
Sheet	3	of	10

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
BJA	AL	1994 Genome Issue of <i>Science</i> (265:1981)	
	AM	Anderson and Young, "Quantitative Filter Hybridization" in <i>Nucleic Acid Hybridization</i> pp73-111 (1985)	
	AN	Ausubel et al., <i>Current Protocols in Molecular Biology</i> , John Wiley & Sons, New York NY (1989)	
	AO	Autexier et al., "Reconstitution of human telomerase activity and identification of a minimal functional region of the human telomerase RNA," (1996) <i>EMBO J.</i> 15:5928	
	AP	Autexier and Gröbler, "Functional reconstitution of wild-type and mutant <i>Tetrahymena</i> telomerase," (1994) <i>Genes Develop.</i> 8:553	
	AQ	Bergar and Kimmel, <i>Guide to Molecular Cloning Techniques</i> , Meth. Enzymol., vol. 162, Academic Press, San Diego CA (1987)	
	AR	Blessman et al., "Addition of Telomere-Associated HsT DNA Sequences 'Heals' Broken Chromosome Ends in <i>Drosophila</i> ," (1990) <i>Cell</i> , 61:883	
	AS	Bitter et al., "Expression and secretion vectors for yeast," <i>Meth Enzymol.</i> (1987) 153:516	
	AT	Blackburn and Chiu, "Non-nucleosomal packaging of a tandemly repeated DNA sequence at termini of extrachromosomal DNA coding for rRNA in <i>Tetrahymena</i> ," (1981) <i>Proc. Natl. Acad. Sci.</i> , 78:2263	
	AU	Blackburn and Gell, "A tandemly repeated sequence at the termini of the extrachromosomal ribosomal RNA genes in <i>Tetrahymena</i> ," (1978) <i>J. Mol. Biol.</i> , 120:33	
	AV	Blackburn, "Telomerases," (1992) <i>Ann. Rev. Biochem.</i> , 61:113	
	AW	Bodnar et al., "Extension of Life-Span by Introduction of Telomerase into Normal Human Cells," (1998) <i>Science</i> , 279:349	
	AX	Bradford, "A Rapid and Sensitive method for the Quantitation of Microgram Quantities of Protein Utilizing the Principle of Protein-Dye Binding," (1976) <i>Anal. Biochem.</i> , 72:248	
BJA	AY	Braunstein et al., "Transcriptional silencing in yeast is associated with reduced nucleosome acetylation," (1993) <i>Genes Develop.</i> , 7:592	
Examiner Signature	B. J. Larson		Date Considered 11-16-2003

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 808. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete If Known Application Number 09/721,506 Filing Date November 22, 2000 First Named Inventor Cech, Thomas J. Group Art Unit 1651-1634 Examiner Name To Be Assigned Attorney Docket Number 015389-002616US	
Sheet	4	of	10

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS		
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
BJA	AZ	Galvis et al., "Identification of hnRNP P2 as TLS/PUS using electrospray mass spectrometry," (1995) RNA, 1:724
	BA	Caruthers et al., "New chemical methods for synthesizing polynucleotides," (1980) Nucleic Acids Res. Symp. Ser., 215-223
	BB	Chan and Tye, "Organization of DNA sequences and replication origins at yeast telomeres," (1989) Cell, 59:563
	BC	Calabro-Garnier et al., "A new dominant hybrid selective marker for higher eukaryotic cells," (1981) J. Mol. Biol., 150:1
	BD	Cole et al., "The EBV-hybridoma technique and its application to human lung cancer," Monoclonal Antibodies and Cancer Therapy, Alan R. Liss Inc., New York NY 77-88 (1986)
	BE	Collins et al., "Purification of Tetrahymena telomerase and cloning of genes encoding the two protein components of the enzyme," (1995) Cell, 81:877
	BF	Conrad et al., "RAP1 protein interacts with yeast telomeres in vivo: Overproduction alters telomere structure and decreases chromosome stability," (1990) Cell, 63:739
	BG	Coombe, Dictionary of Biotechnology, Stockton Press, New York NY (1994)
	BH	Cole et al., "Generation of human monoclonal antibodies reactive with cellular antigens," (1983) Proc. Natl. Acad. Sci., 80:2026
	BI	Counter et al., "The catalytic subunit of yeast telomerase," (1987) Proc. Natl. Acad. Sci., 84:9202
	BJ	Counter et al., (1984) Proc. Natl. Acad. Sci., 81:2900
	BK	Creighton, Proteins, Structures and Molecular Principles, WH Freeman and Co, New York, NY (1983)
	BL	Dieffenbach and Dvorkin, PCR Primer, a Laboratory Manual, Cold Spring Harbor Press, Plainview NY (1995)

Examiner Signature	B. J. Lison	Date Considered	11-16-2003
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Substitute for form 1449B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/721,508
		Filing Date	November 22, 2000
		First Named Inventor	Cech, Thomas J.
		Group Art Unit	1651 / 034
		Examiner Name	To Be Assigned
		Attorney Docket Number	015389-002B18US
Sheet	5	of	10

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS		
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
B18	BM	Duplas et al., "Quantitative analysis of polymerase chain reaction products using biotinylated dUTP incorporation," (1993) <i>Anal. Biochem.</i> , 212:229
	BN	Feng et al., "Oxytricha telomere-binding protein: separable DNA-binding and dimerization domains of the α -subunit," <i>Genes Develop.</i> 7:870 (1993) and Gray et al., (1991) <i>Cell</i> 67:807
	BO	Feng et al., "The RNA Component of Human Telomerase," (1995) <i>Science</i> , 269:1236
	BP	GenBank Accession No. AA281298
	BQ	Genbank accession no. AA259878
	BR	Genbank accession no. AA311750
	BS	Gilley et al., "Altering specific telomerase RNA template residues affects active site function," (1995) <i>Genes Develop.</i> , 9:2214
	BT	Gotschling and Cech, "Chromatin Structure of the Molecular Ends of Oxytricha Mononuclear DNA: Phased Nucleosomes and a Telomeric Complex," (1994) <i>Cell</i> , 38:501
	BU	Gotschling and Zeldin, "Telomere proteins: specific recognition and protection of the natural termini of Oxytricha macronuclear DNA," (1988) <i>Cell</i> 47:195
	BV	Grant et al., <i>Meth. Enzymol.</i> , (1987) 153:516-544
	BW	Greenwood et al., "Phylogenetic relationships within the class oligohymenophorea, phylum ciliophora, inferred from the complete small subunit rRNA gene sequences of Colpodium campyllum, Glaucoma chetani, and Ophiostoma henricus," (1991) <i>J. Mol. Evol.</i> , 3:183
	BX	Greider and Blackburn, "A telomeric sequence in the RNA of Tetrahymena telomerase required for telomere repeat synthesis," (1986) <i>Nature</i> , 327:131
B18	BY	Greider and Blackburn, "Identification of a specific telomere terminal transferase activity in Tetrahymena extracts," (1985) <i>Cell</i> , 43:405

Examiner Signature	B. L. Lison	Date Considered	11-16-2003
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet 6

of 10

Complete if Known

Application Number	09/721,506
Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas J.
Group Art Unit	1654 1634
Examiner Name	To Be Assigned
Attorney Docket Number	016388-002618US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
Bdf	BZ	Greider, "Telomerase is processive," (1991) <i>Mol. Cell Biol.</i> 11:4672	
	CA	Greider, "Telomere Length Regulation," (1990) <i>Ann. Rev. Biochem.</i> 69:337	
	CB	Hampton et al., <i>Senological Methods a Laboratory Manual</i> , APS Press, St Paul MN (1990)	
	CC	Harrington et al., "A Mammalian Telomerase-Associated Protein," (1997) <i>Science</i> , 275:873	
	CD	Harrington et al., "Human telomerase contains evolutionarily conserved catalytic and structural subunits," (1997) <i>Genes Dev.</i> 11:3109	
	CE	Hartman and Mulligan, "Two dominant-acting selectable markers for gene transfer studies in mammalian cells," (1986) <i>Proc. Natl. Acad. Sci.</i> 83:8047	
	CF	Henderson and Blackburn, "An overhanging 3' terminus is a conserved feature of telomeres," (1989) <i>Mol. Cell Biol.</i> 9:345	
	CG	Horn et al., "Synthesis of oligonucleotides on cellulose. Part II: design and synthetic strategy to the synthesis of 22 oligodeoxynucleotides coding for gastric inhibitory polypeptide (GIP)," (1980) <i>Nucleic Acids Res. Symp. Ser.</i> 225-232	
	CH	Hudson et al., "An STS-based map of the human genome," (1995) <i>Science</i> , 270:1945	
	CI	Huse et al., "Generation of a large combinatorial library of the immunoglobulin repertoire in phage lambda," (1989) <i>Science</i> , 248:1275	
	CJ	Johnson et al., (1981) <i>Mol. Cell Biol.</i> 1:1	
	CK	Kilian et al., "Isolation of a candidate human telomerase catalytic subunit gene, which reveals complex splicing patterns in different cell types," (1997) <i>Hum. Mol. Genet.</i> 6:2011	
	CL	Kipling and Cooke, "Hypervariable ultra-long telomeres in mice," (1980) <i>Nature</i> 347:400	
Bdf	CM	Klobutcher et al., "All gene-sized DNA molecules in four species of hypotrichs have the same terminal sequence and an unusual 3' terminus," (1991) <i>Proc. Natl. Acad. Sci.</i> 78:3015	

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Signature

B. L. Lison

Date

Considered

11-16-2003

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet

7

of

10

Complete if Known

Application Number	09/721,508
Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas J.
Group Art Unit	1851 1634
Examiner Name	To Be Assigned
Attorney Docket Number	015388-002616US

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
B.L.H.	CN	Koehler and Milestik, "Continuous cultures of fused cells secreting antibody of predefined specificity," (1975) <i>Nature</i> 258:495	
	CO	Kosbor et al., "The production of monoclonal antibodies from human lymphocytes," (1983) <i>Immunol. Today</i> 4:72	
	CP	Lamond and Sproat, (1984) "Isolation and Characterization of Ribonucleoprotein Complexes," pp 103-140	
	CQ	Lamond et al., "Probing the structure and function of U2 snRNP with antisense oligonucleotides made of 2'-OMe RNA," (1989) <i>Cell</i> , 58:363	
	CR	Londrav et al., "Schoenlee mutants of <i>Saccharomyces cerevisiae</i> with a defect in telomere replication identify three additional EST genes," (1996) <i>Genetics</i> , 144	
	CS	Lingner et al., "Purification of telomerase from <i>Euphotes adelaidae</i> : requirement of a primer 3' overhang," (1988) <i>Proc. Natl. Acad. Sci.</i> , 85:10712	
	CT	Lingner et al., "Reverse transcriptase motifs in the catalytic subunit of telomerase," (1997) <i>Science</i> , 276:581	
	CU	Lingner et al., "Telomerase RNAs of different classes have a common secondary structure and a permuted template," (1994) <i>Genes Develop.</i> , 8:1284	
	CV	Lingner et al., "Telomerase and DNA End Replication: No Longer a Lagging Strand Problem?," (1995) <i>Science</i> 269:1533	
	CW	Lowy et al., "Isolation of transforming DNA: Cloning the hamster apt genes," (1980) <i>Cell</i> , 22:817	
	CX	Lustig and Pales, Identification of yeast mutants with altered telomere structure," (1986) <i>Proc. Natl. Acad. Sci.</i> , 83:1398	
	CY	Maddox et al., "Elevated serum levels in human pregnancy of a molecule immunohistochemically similar to eosinophil granule major basic protein," (1983) <i>J. Exp. Med.</i> , 158:1211	
	CZ	Makarov et al., "Nucleosomal Organization of Telomere-Specific Chromatin in Rat," (1993) <i>Cell</i> , 73:776	
B.L.H.	DA	McEachern and Blackburn, "runaway telomere elongation caused by telomerase RNA gene mutation," (1996) <i>Nature</i> , 379:403	

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B.L.H.

Date
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**INFORMATION DISCLOSURE
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Sheet 8

of 10

Complete if Known

Application Number	09/721,506
Filing Date	November 22, 2000
First Named Inventor	Cech, Thomas J.
Group Art Unit	1861-1634
Examiner Name	To Be Assigned
Attorney Docket Number	015389-002616US

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
B2A	DB	Melby et al., "Quantitative measurement of human cytokine gene expression by polymerase chain reaction," (1993) <i>J. Immunol. Meth.</i> , 159:235
	DC	Merrifield, "Solid phase peptide synthesis. I. The synthesis of a tetrapeptide," (1965) <i>J. Am. Chem. Soc.</i> , 87:2140
	DD	Meyerson et al., "hEST2, the Putative Human Telomerase Catalytic Subunit Gene, Is Up-Regulated in Tumor Cells and during Immortalization," (1997) <i>Cell</i> , 90:785
	DE	Murray, <i>In McGraw Hill Yearbook of Science and Technology</i> , (1992) McGraw Hill, New York NY, pp 181-190
	DF	Nakamura et al., "Telomerase Catalytic Subunit Homologs from Fission Yeast and Human," (1997) <i>Science</i> , 277:955
	DG	Nakayama et al., "TLP1: A Gene Encoding a Protein Component of Mammalian Telomerase Is a Novel Member of WD Repeat Family," (1997) <i>Cell</i> , 88:875
	DH	Nielsen et al., (1993) "Peptide nucleic acids (PNAs): Potential antisense and anti-gene agents," <i>Anticancer Drug Des.</i> , 8:53
	DI	Oke et al., "Inverted terminal repeat sequence in the macronuclear DNA of <i>Stylomyxa pushtata</i> ," (1980) <i>Gene</i> , 10:301
	DJ	Olovnikov, "A theory of marginotomy: The incomplete copying of template margin in enzymic synthesis of polynucleotides and biological significance of the phenomenon," (1973) <i>J. Theor. Biol.</i> , 41:181
	DK	Orlandi et al., "Cloning immunoglobulin variable domains for expression by the polymerase chain reaction," (1988) <i>Proc. Natl. Acad. Sci.</i> , 85:3533
	DL	Prescott, "The DNA of ciliated protozoa," (1994) <i>Microbiol. Rev.</i> , 58:233
	DM	Price, (1993) <i>Blood Rev.</i> , 7:127
	DN	Rhodes et al., "Transformation of maize by electroporation of embryos," (1995) <i>Meth. Mol. Biol.</i> , 55:121
B1B	DO	Roberts et al., "A strategy for a convergent synthesis of N-linked glycopeptides on a solid support," (1995) <i>Science</i> , 269:202

Examiner Signature

B.D. Lison

Date

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 9

of 10

Complete if Known

Application Number	08/721,506
Filing Date	November 22, 2000
First Named Inventor	Cach, Thomas J.
Group Art Unit	1851 / 634
Examiner Name	To Be Assigned
Attorney Docket Number	016389-002618US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	2
BH	DP	Romero and Blackburn, "A conserved secondary structure for telomerase RNA," (1991) <i>Cell</i> , 67:343	
	DQ	Sambrook et al., <i>Molecular Cloning, A Laboratory Manual</i> , Cold Spring Harbor Press, Plainview NY (1989)	
	DR	Sandell et al., "Transcription of yeast telomeres alleviates telomere position effect without affecting chromosome stability," (1994) <i>Proc. Natl. Acad. Sci.</i> , 91:12081	
	DS	Sanger et al., "DNA sequencing with chain-terminating inhibitors," (1977) <i>Proc. Natl. Acad. Sci.</i> , 74:5463	
	DT	Scharf et al., "Heat stress promoters and transcription factors," (1994) <i>Result Probl. Cell Differ.</i> 20:125	
	DU	Shampay and Blackburn, "Generation of telomere-length heterogeneity in <i>Saccharomyces cerevisiae</i> ," (1988) <i>Proc. Natl. Acad. Sci.</i> , 85:534	
	DV	Shen and Lavis, "Transposition of the LINE-like retrotransposon TART to <i>Drosophila</i> chromosome termini," (1994) <i>Proc. Natl. Acad. Sci.</i> , 91:12510	
	DW	Singer and Gottschling, "TLC1: Template RNA Component of <i>Saccharomyces cerevisiae</i> Telomerase," (1994) <i>Science</i> 266:404	
	DX	Stirling et al., "Expansive telomere repeat arrays in mouse are hypervariable," (1990) <i>Nucleic Acids Res.</i> , 18:6881	
	DY	Swanton et al., "Arrangement of Coding and Non-coding Sequences in the DNA Molecules Coding for rRNAs in <i>Oxytricha</i> sp.," (1980) <i>Chromosoma</i> 77:203	
	DZ	Timmerup et al., "Unusual chromatin in human telomeres," (1994) <i>Mol. Cell. Biol.</i> , 14:5777	
	EA	Track, "Fluorescence in situ hybridization: application in cytogenetics and gene mapping," (1991) <i>Trends Genet.</i> , 7:149	
	EB	Varna et al., <i>Human Chromosomes: A Manual of Basic Techniques</i> , Pergamon Press, New York NY (1988)	
BH	EC	Watson, "Origin of concatameric T7 DNA," (1972) <i>Nature New Biol.</i> , 239:187	

Examiner
Signature

B. J. Lison

Date

Considered

11-16-2003

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Substitute for form 1449B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/721,806
		Filing Date	November 22, 2000
		First Named Inventor	Cech, Thomas J.
		Group Art Unit	1881 1634
		Examiner Name	To Be Assigned
Sheet 10 of 10	Attorney Docket Number	015389-002618US	

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS		
Examiner Initials *	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issu number(s), publisher, city and/or country where published.
B.T.H.	ED	Weinrich et al., "Reconstitution of human telomerase with the template RNA component hTR and the catalytic protein subunit hTRT," (1997) Nat. Genet., 17(4):468
	EE	Wellinger et al., "Origin activation and formation of single-strand TG ₁₋₃ tails occur sequentially in late S phase on a Yeast linear plasmid," (1993) Mol. Cell. Biol., 13:4057
	EF	Wellinger et al., "Saccharomyces Telomeres Acquire Single-Strand TG ₁₋₃ Tails Late in S Phase," (1993) Cell 72:61
	EG	Whitehead Institute/MIT Center for Genome Research, Genetic Map of the Mouse, Database Release 10, April 28, 1995
	EH	Wigler et al., "Transfer of purified herpes virus thymidine kinase gene to cultured mouse cells," (1977) Cell, 11:223
	EI	Wigler et al., "Transformation of mammalian cells with an amplifiable dominantacting gene," (1980) Proc. Natl. Acad. Sci., 77:3667
	EJ	Winer and Milstein, "Man-made antibodies," (1991) Nature, 349:293
	EK	Wright et al., "Saccharomyces telomeres assume a non-nucleosomal chromatin structure," (1992) Genes Develop., 6:197
	EL	Yu et al., "In vivo alteration of telomere sequences and senescence caused by mutated Tetrahymena telomerase RNAs," (1990) Nature, 344:128
	EM	Zehler and Prescott, "Telomere terminal transferase activity in the hypotrichous ciliate Oryzicha nova and a model for replication of the ends of linear DNA molecules," (1984) Nucleic Acids Res., 12:6953
	EN	Zakian, Telomeres: Beginning to Understand the End," (1995) Science 270:1601
B.T.H.	EO	Zang et al., "Catalysis of RNA Cleavage by a Ribozyme Derived from the Group I Intron of Arabidopsis Pre-rRNA ^{45S} ,"

Examiner Signature	<i>B. J. Lison</i>	Date Considered	11-16-2003
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